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REMARKS/ARGUMENTS

Claims 1, 3-10, 21, 22 and 24-28 are pending in this application. By this amendment, Applicants amend claims 1 and 21.

Claims 1, 3, 4, 7-10, 21, 22 and 24-26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Camp (U.S. 5,726,623) in view of Becker et al. (U.S. 2,418,461). Claims 1, 3, 4, 7-10, 21, 22 and 24-26 were rejected under U.S.C. § 103(a) as being unpatentable over Rehneit (U.S. 6,232,868) in view of Camp and Becker et al. Claims 5 and 27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Camp in view of Becker et al., and further in view of Nagao et al. (U.S. 5,939,972). Claims 6 and 28 were rejected under U.S.C. § 103(a) as being unpatentable over Camp in view of Becker et al., or Rehneit in view of Camp and Becker et al., and further in view of Ikeda et al. (U.S. 6,147,330). Applicants respectfully traverse the rejections of claims 1, 3-10, 21, 22 and 24-28.

Claim 1 has been amended to recite:

"A surface-mountable PTC thermistor element comprising:
a thermistor element body including a top surface and a bottom surface;

electrodes disposed on the top surface and the bottom surface of the thermistor element body;

lower and upper terminals arranged such that each of the electrodes is connected with a respective one of the lower and upper terminals, and each of the lower and upper terminals is extended downward; wherein

said lower terminal includes a junction portion, a **short vertical-leg portion connected to and bent vertically in a downward direction from the junction portion** such that the short vertical-leg portion extends perpendicular to the surface of the thermistor element body and to the junction portion, and a **lower-end portion which extends entirely in a plane substantially parallel to the junction portion and substantially perpendicular to the short vertical-leg portion**;

said short vertical-leg portion is directly connected and extends directly between the junction portion and the lower-end portion;

the junction portion of the lower terminal is mechanically attached to one of the electrodes;

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the upper and lower terminals contact only the electrodes on the top and bottom surfaces of the thermistor element body and a mounting surface when the surface-mountable PTC thermistor element is mounted on the mounting surface;

the lower-end portion of the lower terminal is disposed in contact with the mounting surface when the surface-mountable PTC thermistor element is mounted on the mounting surface; and

said vertical-leg portion of the lower terminal is located closer to the center of the thermistor element body than to a periphery of the thermistor element body so as to be spaced inwardly from the periphery of the thermistor element body.” (emphasis added)

Claim 21 has been amended to recite:

“A surface-mountable PTC thermistor element comprising:
a thermistor element body including a top surface and a bottom surface;

electrodes disposed on the top surface and the bottom surface of the thermistor element body;

lower and upper terminals arranged such that each of the electrodes is connected with a respective one of the lower and upper terminals, and each of the lower and upper terminals is extended downward; wherein

said upper terminal includes a junction portion contacting the electrode located on the top surface of the thermistor element body, and a vertical-leg portion extending perpendicularly from an end of the junction portion;

said lower terminal includes a junction portion contacting the electrode located on the bottom surface of the thermistor element body, and a **vertical-leg portion connected to and bent perpendicularly from an end of the junction portion of said lower terminal;**

said vertical-leg portion of said upper terminal is longer than said vertical-leg portion of said lower terminal;

said vertical-leg portion of the lower terminal is located closer to the center of the thermistor element body than to a periphery of the thermistor element body so as to be spaced inwardly from the periphery of the thermistor element body;

a lower end of said vertical-leg portion of said upper terminal is located in a common plane with a lower end of said vertical-leg portion of said lower terminal, the common plane being parallel to said top and bottom surfaces of the thermistor element body and located at a mounting surface of a substrate upon which the surface-

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mountable PTC thermistor element is mounted;

said junction portion of said upper terminal and said junction portion of said lower terminal overlap with each other at a central portion of said thermistor element body with the thermistor element body disposed therebetween; and

the upper and lower terminals contact only the electrodes on the upper and lower surfaces of the thermistor element body and the mounting surface when the surface mountable PTC thermistor element is mounted on the mounting surface." (emphasis added)

The Examiner alleged that the combination of Camp and Becker et al. teaches all of the features recited in Applicants' claims 1 and 21, and that the combination of Rehneft, Camp and Becker et al. teaches all of the features recited in Applicants' claims 1 and 21.

Particularly, the Examiner alleged that "Camp discloses the claimed invention at Figs. 2 and 4. The junction portion is where the top of the U touches the thermistor, with the vertical portion one or both of the legs of the U shaped channel portion. The legs are bent vertically in a downward direction since they are bent vertically, and extend in a downward direction. The lower end portion is the middle horizontal portion of the U, and could include the portions 14 and 15 if "end" requires the end of the terminal to be included."

Claim 1 recites the features of "a short vertical-leg portion connected to and bent vertically in a downward direction from the junction portion," "a lower-end portion which extends entirely in a plane substantially parallel to the junction portion and substantially perpendicular to the short vertical-leg portion," "the lower-end portion of the lower terminal is disposed in contact with the mounting surface when the surface-mountable PTC thermistor element is mounted on the mounting surface" and "said vertical-leg portion of the lower terminal is located closer to the center of the thermistor element body than to a periphery of the thermistor element body so as to be spaced inwardly from the periphery of the thermistor element body."

Claim 21 recites the features of "a vertical-leg portion connected to and bent

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perpendicularly from an end of the junction portion of said lower terminal," "said vertical-leg portion of the lower terminal is located closer to the center of the thermistor element body than to a periphery of the thermistor element body so as to be spaced inwardly from the periphery of the thermistor element body" and "a lower end of said vertical-leg portion of said upper terminal is located in a common plane with a lower end of said vertical-leg portion of said lower terminal, the common plane being parallel to said top and bottom surfaces of the thermistor element body and located at a mounting surface of a substrate upon which the surface-mountable PTC thermistor element is mounted."

In contrast to Applicants' claims 1 and 21, the legs of the U shaped portion of the lower terminal 14 of Camp, which the Examiner alleged correspond to the vertical-leg portion recited in Applicants' claims 1 and 21, are not in any manner bent with respect to the top of the U shaped portion, which the Examiner alleged corresponds to the junction portion recited in Applicants' claims 1 and 21, and are certainly not connected to and bent vertically in a downward direction from the junction portion. To the contrary, the junction portion of Camp is merely the upper ends of the legs of the U shaped portion. Thus, Applicants respectfully submit that Camp clearly fails to teach or suggest the feature of "a short vertical-leg portion connected to and bent vertically in a downward direction from the junction portion" as recited in Applicants' claim 1, and the feature of "a vertical-leg portion connected to and bent perpendicularly from an end of the junction portion" as recited in Applicants' claim 21.

In addition, as clearly seen in Fig. 2 of Camp, the middle horizontal portion of the U shaped portion of the lower terminal 14 of Camp, which the Examiner alleged corresponds to the lower end portion recited in Applicants' claim 1, is clearly not disposed in contact with the mounting surface, and instead is spaced a substantial distance above the mounting surface. Thus, Camp clearly fails to teach or suggest the feature of "the lower-end portion of the lower terminal is disposed in contact with the mounting surface when the surface-mountable PTC thermistor element is mounted on the mounting surface" as recited in Applicants' claim 1.

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Furthermore, since the legs of the U shaped portion of the lower terminal 14 of Camp terminate at the middle horizontal portion of the U shaped portion, which is spaced a substantial distance from the mounting surface, Camp certainly fails to teach or suggest the feature of **"a lower end of said vertical-leg portion of said upper terminal is located in a common plane with a lower end of said vertical-leg portion of said lower terminal, the common plane being parallel to said top and bottom surfaces of the thermistor element body and located at a mounting surface of a substrate upon which the surface-mountable PTC thermistor element is mounted"** as recited in Applicants' claim 21.

Alternatively, if the lower end portion of the lower terminal 14 of Camp was interpreted to include element 15 and the vertical portion that extends between the middle horizontal portion of the U shaped portion and element 15, as seen in Fig. 2 of Camp, then Camp would clearly fail to teach or suggest the feature of "a lower-end portion which extends entirely in a plane substantially parallel to the junction portion and substantially perpendicular to the short vertical-leg portion" as recited in Applicants' claim 1. Particularly, the lower end portion, as interpreted above, would include a vertical portion that extends substantially perpendicular to the junction portion and substantially parallel to the short vertical-leg portion. Thus, the lower end portion, as interpreted above, would **NOT extend entirely in a plane substantially parallel to the junction portion and substantially perpendicular to the short vertical-leg portion** as recited in Applicants' claim 1.

The Examiner further alleged that Becker et al. "discloses a bent vertical portion in the vicinity of the center at the sole figure, as typical in the thermistor arts in order to ensure securing terminals to a thermistor like that of Camp, so that such an arrangement would have been obvious, where for example, the terminals are made to accommodate larger thermistors, or are made smaller to decrease material costs, or are put at center of a device for firmly securing same to the device as suggested at col. 2, lines 5-10 of Becker [et al.], where the whole horizontal portion of the lead is secured in

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this fashion, or which would have been obvious to ensure that a load is better supported since any first year physics student would recognize that the object would be better supported with the supporting structure centering the weight." Applicants respectfully disagree.

Element 13 of Becker et al. is disclosed as being a lead, and as clearly seen in the figure of Becker et al., the lead 13 is disposed on an upper surface of the resistor 10, **NOT** on a lower surface thereof, and extends upward, **NOT** downward. In addition, the lead 13 is **NOT** disclosed as being provided to support the resistor 10, and is clearly incapable of doing so. Furthermore, Becker et al. fails to teach or suggest any lower terminal. Thus, Becker et al. certainly fails to teach or suggest a lower terminal including the structural features recited in Applicants' claims 1 and 21. Therefore, Applicants respectfully submit that Becker et al. fails to cure the deficiencies of Camp, described above.

Regardless of the Examiner's allegation that a centered vertical-leg portion "would have been obvious to ensure that a load is better supported since any first year physics student would recognize that the object would be better supported with the supporting structure centering the weight," the Examiner is reminded that prior art rejections must be based on evidence. Graham v. John Deere Co., 383 U.S. 117 (1966). The Examiner is hereby requested to cite a reference in support of his position that it was well known at the time of Applicants' invention to provide a lower terminal of a surface-mountable PTC thermistor element which is located closer to the center of the thermistor element body than to a periphery of the thermistor element body so as to be spaced inwardly from the periphery of the thermistor element body.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Camp in view of Becker et al.

The Examiner further alleged that Rehneit "teaches all of the claimed invention except explicit mention of the electrodes (claims 1, 21), and the lower end portion of

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claims 1, 7, 24 and 25 (termed horizontal connection portion)." In addition, the Examiner alleged that Camp teaches electrodes for contact purposes, and that "Becker [et al.] discloses a vertical leg portion at the sole figure closer to the center of a device which would have been obvious to ensure that a load is better supported since any first year physics student would realize that the object would be better supported with the supporting structure centering the weight." Applicants respectfully disagree.

As clearly seen in Fig. 2 of Rehneit, the lower terminal 5 includes a vertical-leg portion that is disposed much closer to a peripheral edge of the thermistor element body 3, and certainly fails to teach or suggest any vertical-leg portion of the lower terminal that "is located closer to the center of the thermistor element body than to a periphery of the thermistor body so as to be spaced inwardly from the periphery of the thermistor element body" as recited in Applicants' claims 1 and 21.

As noted above, neither Camp nor Becker et al. cures the deficiencies of Rehneit, for the reasons described above.

Thus, none of Rehneit, Camp and Becker et al. teaches or suggests the features of "a short vertical-leg portion connected to and bent vertically in a downward direction from the junction portion," "a lower-end portion which extends entirely in a plane substantially parallel to the junction portion and substantially perpendicular to the short vertical-leg portion," "the lower-end portion of the lower terminal is disposed in contact with the mounting surface when the surface-mountable PTC thermistor element is mounted on the mounting surface" and "said vertical-leg portion of the lower terminal is located closer to the center of the thermistor element body than to a periphery of the thermistor element body so as to be spaced inwardly from the periphery of the thermistor element body" as recited in Applicants' claim 1, or the features of "a vertical-leg portion connected to and bent perpendicularly from an end of the junction portion of said lower terminal," "said vertical-leg portion of the lower terminal is located closer to the center of the thermistor element body than to a periphery of the thermistor element body so as to be spaced inwardly from the periphery of the thermistor element body"

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and "a lower end of said vertical-leg portion of said upper terminal is located in a common plane with a lower end of said vertical-leg portion of said lower terminal, the common plane being parallel to said top and bottom surfaces of the thermistor element body and located at a mounting surface of a substrate upon which the surface-mountable PTC thermistor element is mounted" as recited in Applicants' claim 21.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Rehnelt in view of Camp and Becker et al.

Nagao et al. and Ikeda et al. were relied upon to allegedly cure various deficiencies of Camp, Becker and Rehnelt. However, neither Nagao et al. nor Ikeda et al. teaches or suggests the features of "a short vertical-leg portion connected to and bent vertically in a downward direction from the junction portion," "a lower-end portion which extends entirely in a plane substantially parallel to the junction portion and substantially perpendicular to the short vertical-leg portion," "the lower-end portion of the lower terminal is disposed in contact with the mounting surface when the surface-mountable PTC thermistor element is mounted on the mounting surface" and "said vertical-leg portion of the lower terminal is located closer to the center of the thermistor element body than to a periphery of the thermistor element body so as to be spaced inwardly from the periphery of the thermistor element body" as recited in Applicants' claim 1, or the features of "a vertical-leg portion connected to and bent perpendicularly from an end of the junction portion of said lower terminal," "said vertical-leg portion of the lower terminal is located closer to the center of the thermistor element body than to a periphery of the thermistor element body so as to be spaced inwardly from the periphery of the thermistor element body" and "a lower end of said vertical-leg portion of said upper terminal is located in a common plane with a lower end of said vertical-leg portion of said lower terminal, the common plane being parallel to said top and bottom surfaces of the thermistor element body and located at a mounting surface of a substrate upon which the surface-mountable PTC thermistor element is mounted" as

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recited in Applicants' claim 21.

Accordingly, Applicants respectfully submit that none of the prior art of record, applied alone or in combination, teaches or suggests the unique combination and arrangement of elements recited in Applicants' claims 1 and 21.

In view of the foregoing amendments and remarks, Applicants respectfully submit that claims 1 and 21 are allowable. Claims 3-10, 22 and 24-28 depend upon claims 1 and 21, and are therefore allowable for at least the reasons that claims 1 and 21 are allowable.

In view of the foregoing amendments and remarks, Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

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